



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
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Seattle, WA 98115

Refer to:
OSB2001-0026-FEC

July 27, 2001

Mr. Carl J. Christianson
Project Manager
US Corps of Engineers, Walla Walla District
201 North Third Avenue
Walla Walla, Washington 99362-1876

Re: Endangered Species Act Formal Section 7 Consultation and Magnuson-Stevens Act
Essential Fish Habitat Consultation for East Birch Creek Fish Habitat Restoration
Project, Umatilla County, Oregon

Dear Mr. Christianson:

Enclosed is a biological opinion (Opinion) prepared by the National Marine Fisheries Service (NMFS) pursuant to section 7 of the Endangered Species Act (ESA) that addresses the proposed East Birch Creek Fish Habitat Restoration Project near the city of Pilot Rock, Umatilla County, Oregon. The NMFS concludes in this Opinion that the proposed action is not likely to jeopardize Middle Columbia River steelhead or destroy, or adversely modify their critical habitat. This Opinion includes reasonable and prudent measures with terms and conditions that are necessary and appropriate to minimize the potential for incidental take associated with this project.

In addition this document also serves as consultation on Essential Fish Habitat (EFH) for chinook salmon under Public Law 104-267, the Sustainable Fisheries Act of 1996, as it amended the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). An EFH analysis is required for chinook salmon.

Questions regarding this Opinion should be directed to Eric Murray of the La Grande Field Office of the Oregon Habitat Branch at 541.962.8606.

Sincerely,
Donna Darm

Donna Darm
Acting Regional Administrator

cc: Tim Bailey (ODFW)
Ben Tice (COE)
Mary Headley (COE)



Endangered Species Act - Section 7 Consultation
&
Magnuson-Stevens Act
Essential Fish Habitat Consultation

BIOLOGICAL OPINION

East Birch Creek Fish Habitat Restoration Projects
East Birch Creek Drainage, Birch Creek Watershed
Umatilla River Basin, Umatilla County, Oregon

Agency: U.S. Department of the Army, Corps of Engineers

Consultation Conducted By: National Marine Fisheries Service,
Northwest Region

Date Issued: July 27, 2001

Refer to: OSB2001-0026-FEC

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1. ENDANGERED SPECIES ACT

1.1 Background

On February 20, 2001, the National Marine Fisheries Service (NMFS) received a letter dated February 16, 2001, from the Corps of Engineers (COE) requesting formal consultation regarding the potential effects of two fish habitat restoration projects in East Birch Creek on Middle Columbia River (MCR) steelhead (*Oncorhynchus mykiss*) and their designated critical habitat. The Oregon Department of Fish and Wildlife (ODFW) is a partner and cost sharing sponsor in this project. Prior to March 18, 2001, Mr. Scott Leonard of the NMFS Habitat Division contacted Mr. Ben Tice of the COE to inform him that the information contained in the letter and attached biological assessment (BA) was insufficient. At this point it was agreed that the ODFW would provide the additional information in the form of a new BA. A new letter and attached BA from the ODFW dated May 25, 2001, was received on June 6, 2001. These documents described the proposed actions and concluded that the proposed actions are “likely to adversely affect” (LAA) MCR steelhead or their designated critical habitat. East Birch Creek is a tributary of Birch Creek, a tributary of the Umatilla River in northeastern Oregon.

The MCR steelhead was listed under the ESA on March 25, 1999 (64 FR 14517). The proposed project is within MCR steelhead critical habitat, which was designated February 16, 2000 (65 FR 7764). Protective regulations were issued for MCR steelhead under Section 4(d) of the ESA on July 10, 2000 (65 FR 42423).

The objective of this Opinion is to determine whether the action to conduct fish habitat restoration activities in East Birch Creek in Umatilla County is likely to jeopardize the continued existence of the Middle Columbia River (MCR) steelhead or destroy or adversely modify their critical habitat.

1.2 Proposed Action

1.2.1 Phase I

The proposed action is to authorize the restoration of 1.2 miles of East Birch Creek located on the John Brogoitti estate and 0.4 miles of East Birch Creek on the John Houser estate under Section 206 of the Clean Water Act, Aquatic Ecosystem Restoration authority. The action area begins approximately 0.5 miles downstream of the confluence of Johnson Creek and the downstream extent is defined by the distribution of the sediment introduced by this action, approximately 1 mile. The ODFW has a 15-year riparian lease with J. Houser and a 25-year habitat restoration easement with J. Brogoitti. The proposed restoration activities involve both placing instream structures and re-routing the stream channel. Revegetation of riparian areas with native plants and fencing of a riparian buffer to exclude cattle grazing will also take place. In addition, this project includes two bridge replacements and development of shallow wells, springs, and creation of borrow ponds to provide off-site watering locations for cattle.

The project will be completed in phases to minimize impacts to ESA listed steelhead and facilitate optimum effectiveness. Phase I will include construction of 2,700-3,200 feet of new sections of stream channel with heavy equipment. The purpose of this action is to return the stream dimension, pattern, and profile to a more natural state. This construction has been planned to minimize impacts to existing vegetation and all disturbed vegetation will be used to help facilitate later revegetation efforts. All instream structures to be placed in the newly created stream sections will be installed before water is introduced into these channels. The construction of these new channel sections will result in a 180 linear-foot net increase in fish habitat. Prior to rerouting the water flow into the new channel sections, fish that would become trapped in abandoned stream sections will be captured and relocated to the new channel sections by ODFW personnel. This will be accomplished by blocking off these stream segments with nets and using seine nets and backpack electroshockers, in accordance with NMFS' guidelines for use on listed fish, to collect the remaining fish. Fish will be placed in oxygenated transported containers and then placed in the new channel.

Placement of instream structures, reshaping of the existing channel and excavation of borrow ponds will occur during Phase I. One rock entrance control structure will be installed on the Brogoitti property. The purpose of this structure will be to prevent the stream from creating a new channel through the floodplain around the start of this project. This structure also combines a cross berm and channel crossing vane to set the desired streambed elevation at the start of the restoration area. If necessary, an offset levee constructed of random earth will be created downstream of the entrance control structure to contain extreme out-of-bank flows. The levee will be 2-5 feet high and 5-20 feet wide.

Instream structures to be placed in the existing channel or newly created channel include: 2 rock cross berms, 57 J-hooks, 31 rock cross veins, 8-10 rock veins, 10-50 rootwads, 15 large woody debris structures, 30 rock cover structures, and 10 floating log cover structures. The purpose of these structures is to prevent streambank erosion and sedimentation as well as provide habitat for salmonids. All of these structures are designed to allow for fish passage. A detailed description of the construction of these structures is found in the BA for this project. Some instream work will be required to install structures in the existing channel. This work will take place during the Oregon Department of Fish and Wildlife (ODFW) instream work window of 1 July - 31 October.

Reshaping of the existing channel sections will also require instream work. Reshaping of the thalweg and banks will occur to create a more hydraulically-stable channel. Pools will be constructed on outside bends and point bars will be reshaped to form a bankfull channel and flood prone areas. In sections where major channel reshaping occurs, a fish salvage operation, similar to the one described above, will occur. Channel reshaping is necessary to improve width to depth ratios, prevent further bank erosion, and reconnect the stream to its flood plain. The proposed channel meanders are based on an upstream reach that has not been heavily impacted.

Bank stabilization and resloping will also occur. Limited bank stabilization will be accomplished by anchoring large rocks, rootwads, or logs into the bank. These structures will be designed to provide bank stabilization and improve fish habitat by placing materials in such a

way as to create scour pools, create cover, and increase channel complexity. Bank layback will be conducted on areas with near vertical banks of 5-15 foot height. These banks will be sloped to increase flood capacity and provide an area for riparian vegetation. After sloping, areas will be aggressively revegetated with native plant materials to reduce the potential for flood erosion.

Construction of borrow ponds is unlikely to occur because abundant fill material is already on-site (T. Bailey, ODFW, pers. comm.). No instream work will be associated with excavation of the ponds. If additional fill is needed, borrow ponds may be excavated. The ponds will be allowed to fill with groundwater to create wetland habitat. River gravel will be added to bottom of the ponds if excavation reveals earthen or clay type bottoms. The ponds will vary from 50 to 200 feet in diameter and will range from 1.5 - 8 feet deep. A 10-foot minimum buffer of natural vegetation will be planted around the ponds.

Removal of existing barbs and small woody debris found within the existing channel will occur. Rock removed from the barbs will be salvaged for use in construction of future rock structures such as J-hooks and cross vane, associated with this project. Most of the material to be removed from these barbs will be out of the wetted channel during the time this work will take place. Removal of small woody debris jams/accumulations is necessary to ensure undesired adjustments to the new channel do not occur. This woody material will either be used for the restoration efforts or burned on the uplands near the project site.

Also included in Phase I will be the replacement of two bridges, one on the Houser property and one on the Brogoitti property. The bridges will be set on concrete abutments with wing walls constructed into the streambank terrace. Cross vane structures are included at each bridge site to increase stream/bridge stability. High flow chutes with culverts will be constructed through the road prism underneath the bridge approaches to create additional cross section area to pass out of bank flows. Fish stranding in the culvert discharge area is not considered to be a concern because the design allows fish to return to the main channel as flood waters diminish. Bridge abutments will be placed with a crane or trackhoe and no in-channel excavation will be required for the bridge replacement work.

1.2.2 Phase II

Phase II of this project involves vegetating the disturbed area, construction of livestock exclusion fencing, completion of access routes, gates, and construction of livestock watering areas.

Revegetation of disturbed areas will involve installation of coir erosion control fabric, reseeding with a mixture of native graminoids, and extensive plantings of native woody vegetation. Plant species to be used include willow (*Salix spp.*), red osier dogwood (*Cornus stolonifera*), cottonwood (*Populus spp.*), and alder (*Alnus spp.*). Watering will occur during the first summer to optimize survival of newly planted vegetation. Much of the planting will be done with mechanical equipment using trenching and stinging techniques. Seeding will be done with a broadcast spreader and rooted stock will be hand planted.

Livestock enclosure fencing will be used to protect the stream and riparian buffer zone. The width of this buffer will average 243 feet with a minimum width of 90 feet and a maximum of 550 feet. Six strand high tensile wire will be used in fence construction (T. Bailey, pers. comm). Fencing will be maintained for the duration of the lease or easement; 25 years for the Brogoitti property and 15 years for the Houser property.

Construction of livestock water developments will occur outside of the leased habitat area to reduce damage to streambanks and point source pollution associated with livestock use of waterways. Springs or shallow wells will be developed to provide off-site water. Springs will require minimum plumbing and a tank. Shallow wells will require a solar powered and/or 110 volt water pump. If borrow ponds are created, some of them may be used for livestock watering sites.

1.2.3 Phase III

Phase III will occur during the following summer and spring, 2002. This work will involve weed control and plant irrigation. The landowners existing water rights will be used to irrigate these projects for the first two years. Monitoring by the ODFW to assess the project's effects on stream hydrology, temperature, and fish community will be continue during this phase.

1.3 Biological Information and Critical Habitat

The MCR steelhead Evolutionarily Significant Unit (ESU) was listed as threatened under the ESA by the NMFS on March 25, 1999 (64 FR 14517). Biological information concerning the MCR steelhead is found in Busby et al. (1996). The current status of the MCR steelhead, based upon their risk of extinction, has not significantly improved since the species was listed. Within the Umatilla basin, returns of adult wild summer steelhead have declined from highs of 2,816 and 3,296 (in 1986 and 1987) to an average of 963 during 1995 - 1997. Hatchery steelhead, developed from wild Umatilla broodstock, were introduced to the Umatilla River basin in the late 1980s and an increasing percentage of the summer steelhead are of hatchery origin: 17% of the total adult returns in 1990 vs. 62% in 1997 (Chilcote, 1998).

Critical habitat was designated for the MCR steelhead on February 16, 2000 (65 FR 7764). Critical habitat for MCR steelhead encompasses the major Columbia River tributaries known to support this ESU, including the Deschutes, John Day, Klickitat, Umatilla, Walla Walla, and Yakima Rivers, as well as the Columbia River and estuary. Critical habitat consists of all waterways below long-standing (100 years or more), naturally impassable barriers, including East Birch Creek, which is in the project area. The adjacent riparian zone is also considered critical habitat. This zone is defined as the area that provides the following functions: Shade, sediment, nutrient/chemical regulation, streambank stability, and input of large woody debris/organic matter. Protective regulations for MCR steelhead were issued under section 4(d) of the ESA on July 10, 2000 (65 FR 42423).

East Birch Creek provides spawning, rearing, and migratory habitat for both adult and juvenile life stages of MCR steelhead. Adult MCR steelhead enter the Columbia River beginning in the spring and migrate upriver through the summer, fall, and winter, seeking their tributary of origin. By early the next spring the adults have reached their natal streams and spawn in gravel redds/nests from March to early June. Deposited eggs usually hatch by the July of the same year. The resulting juveniles will spend from one to four years rearing to smolt size at which time they will begin their migration to the ocean. Juvenile steelhead are expected to be rearing in the project area during all phases of this project. An ODFW pass/removal electroshocking survey in East Birch Creek in the summer of 1993 estimated 64,627 juvenile steelhead to be rearing in East Birch Creek.

Essential features of the adult spawning, juvenile rearing, and adult and migratory habitat for this species are: 1) Substrate, 2) water quality, 3) water quantity, 4) water temperature, 5) water velocity, 6) cover/shelter, 7) food (juvenile only), 8) riparian vegetation, 9) space, and 10) safe passage conditions. The essential features that the proposed project may affect are substrate, water quality, water temperature, water velocity, cover/shelter, food, and riparian vegetation.

1.4 Evaluating Proposed Action

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402 (the consultation regulations). NMFS must determine whether the action is likely to jeopardize the listed species and/or whether the action is likely to destroy or adversely modify critical habitat. This analysis involves the initial steps of: 1) Defining the biological requirements and current status of the listed species; and 2) evaluating the relevance of the environmental baseline to the species' current status. Subsequently, NMFS evaluates whether the action is likely to jeopardize the listed species by determining if the species can be expected to survive with an adequate potential for recovery. In making this determination, NMFS must consider the estimated level of mortality attributable to: 1) Collective effects of the proposed or continuing action; 2) the environmental baseline; and 3) any cumulative effects. This evaluation must take into account measures for survival and recovery specific to the listed salmonid's life stages that occur beyond the action area. If NMFS finds that the action is likely to jeopardize, NMFS must identify reasonable and prudent alternatives for the action. Furthermore, NMFS evaluates whether the action, directly or indirectly, is likely to destroy or adversely modify the listed species' designated critical habitat and NMFS must determine whether habitat modifications appreciably diminish the value of critical habitat for both survival and recovery of the listed species. The NMFS identifies those effects of the action that impair the function of any essential element of critical habitat. The NMFS then considers whether such impairment appreciably diminishes the habitat's value for the species' survival and recovery. If NMFS concludes that the action will destroy or adversely modify critical habitat it must identify any reasonable and prudent alternatives available.

For the proposed action, NMFS' jeopardy analysis considers direct or indirect mortality of fish attributable to the action. NMFS' critical habitat analysis considers the extent to which the proposed action impairs the function of essential elements necessary for juvenile and adult

migration, spawning, and rearing of the MCR steelhead under the existing environmental baseline.

1.4.1 Biological Requirements

The first step in the methods the NMFS uses for applying the ESA section 7(a)(2) to listed MCR steelhead is to define the species' biological requirements that are most relevant to each consultation. NMFS also considers the current status of the listed species taking into account population size, trends, distribution and genetic diversity. To assess the current status of the listed species, NMFS starts with the determinations made in its decision to list MCR steelhead for ESA protection and also considers new data available that is relevant to the determination.

The relevant biological requirements are those necessary for MCR steelhead to survive and recover to naturally reproducing population levels at which protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance their capacity to adapt to various environmental conditions, and allow them to become self-sustaining in the natural environment. For this consultation, the biological requirements are improved habitat characteristics that function to support successful adult and juvenile migration, spawning and rearing.

MCR steelhead survival in the wild depends on the proper functioning of certain ecosystem processes including habitat formation and maintenance. The restoration of improperly functioning habitat to a more properly functioning condition will likely lead to improved survival and recovery of MCR steelhead. In conducting analyses of habitat altering actions, NMFS defines the biological requirements in terms of a concept called Properly Functioning Condition (PFC) and applies a "habitat" approach to its analysis (NMFS 1999). The current status of MCR steelhead, based on their risk of extinction, has not improved much since the species was listed.

1.4.2 Environmental Baseline

The current range-wide status of the identified ESU is found in Busby et al. (1995, 1996). The identified action will occur within the range of MCR steelhead. The defined action area is the area that is directly and indirectly affected by the proposed action. The direct effects occur at the project site and may extend upstream or downstream based on the potential for impairing fish passage, stream hydraulics, sediment and pollutant discharge, and the extent of riparian habitat modifications. Indirect effects may occur throughout the watershed, where actions described in this biological opinion (Opinion) lead to additional activities, or affect ecological functions, contributing to stream degradation. As such, the action area for the proposed activities include the immediate portions of the watershed containing the project and those areas upstream and downstream that may reasonably be affected, temporarily or in the long term, by the proposed project.

East Birch Creek is a relatively small sub-watershed encompassing approximately 290 square miles. It begins in the Blue Mountains and flows into Birch Creek, and eventually the Umatilla River near the city of Pendleton, Oregon. Land use in the area is primarily rural-residential, agriculture, grazing and some timber production in the headwaters. The channel characteristics in the action area have led to high sediment supply resulting in pool filling and embedding of spawning substrates. Previous activities carried out by the land owners, such as excavating the stream channel on a yearly basis and allowing cattle grazing in riparian areas, have led to unnatural channelization and poor width to depth ratios in this stream section. Areas upstream of the action area are heavily impacted by agricultural practices, but still extensively used for spawning by MCR steelhead (Tim Baily, ODFW, pers. comm.).

East Birch Creek is listed as water quality limited for temperature and habitat modification on the Clean Water Act 303(d) list for Oregon. Water temperatures often exceed the state-wide standard for salmonid rearing (64° F) during the summer months. The listing for habitat modification is based on habitat surveys conducted by the ODFW in 1993. Habitat deficiencies include; lack of pool area, insufficient wood, and lack of shade in stream stretches less than 12 meters wide.

1.5 Analysis of Effects

1.5.1 Effects of Proposed Action

The purpose of the proposed action, as described in section 1.2 of this Opinion is to restore the current dysfunctional state of the stream channel and to prevent streambank erosion through two project reaches along East Birch Creek. These objectives will be accomplished by rerouting the existing channel, placing rock and wood structures in the stream, resloping and stabilization of banks, planting riparian vegetation and fencing to exclude livestock. Other elements of this project not associated with this purpose, but planned in conjunction with this project, include replacement of two bridges and creation of off-site watering locations for livestock.

The effects determination in this Opinion was made using a method for evaluating current aquatic conditions, the environmental baseline, and predicting effects of actions on them. This process is described in *Making Endangered Species Act determinations of effect for individual and grouped actions at the watershed scale* (NMFS 1996). The effects of actions are expressed in terms of the expected effect (restore, maintain, or degrade) on aquatic habitat factors in the action area. For the proposed actions, all conditions for East Birch Creek will be maintained or restored in the long term. NMFS does expect some negative effects in the shortterm. Specific effects are discussed below.

In the long term, many aspects of this project will improve instream habitat and facilitate the restoration of riparian vegetation. The instream structures will provide overhead cover for both adults and rearing juveniles. They will also increase sediment transport capacity, prevent down cutting, and increase stream depth by decreasing width-to-depth ratio. Meander enhancement, generated by the creation of new channel segments, will create a single thread channel with low

width-to-depth ratio and provide more habitat by lengthening the stream. Increased meandering will also reduce water velocity and allow for natural floodplain storage of water during high flow events. The riparian plantings planned for this project, if successful, will improve fish habitat by improving bank stabilization, encouraging pool development, and providing terrestrial insect drop for fish. Increased shading by these plants should lead to a reduction of water temperatures.

Potential negative impacts to listed MCR steelhead could result from this project. Installation of instream structures, streambank shaping, channel meander, and new channel construction will result in short-term sediment increases. The short-term increase in turbidity could result in temporary reduction in feeding efficiency for juvenile steelhead within the action area. Increased sedimentation may also lead to increased embeddness of spawning substrates downstream of the project. Instream work scheduled for this project will take place during the 1 July- 31 October work window. Due to the typically low flows present in East Birch Creek during this time, sedimentation rates are expected to be minimal. Disturbance of riparian vegetation could result in decreased shade, leading to increased water temperatures until riparian vegetation is re-established. There is also the potential for fuel or other containment spills associated with use of heavy equipment in or near the stream.

The fish salvage operation to be conducted prior to filling of the new stream channels will result in disturbance and stress to listed steelhead. Stress approaching or exceeding the physiological tolerance limits of individual fish can impair reproductive success, growth, resistance to infectious diseases, and general survival (Wedemeyer *et al.* 1990). Mechanical injury is also possible during holding, netting, or electroshocking. Many factors influence the relative effects of electrofishing on fish including conductivity of water, depth of water, substrate, and size of the fish. Additionally, the amount of time taken to complete electrofishing within the sample area, the frequency of sampling through time, crew efficiency, and operator skill have been identified as factors influencing the magnitude of electrofishing effects.

1.5.2 Cumulative Effects

“Cumulative effects” are defined in 50 CFR 402.02 as those of “future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation.” The action area for this consultation includes the streambed and streambank, including riparian areas, of East Birch Creek within the area of the project site and for a short distance upstream and downstream. The ODFW has conducted habitat restoration in stream sections above and below the action area and is currently considering additional habitat restoration in upstream sections. These projects should lead to improved spawning and rearing habitat for MCR steelhead in East Birch Creek.

1.6 Conclusion

NMFS has determined that, when the effects of the fish habitat restoration activities and actions associated with this project are added to the environmental baseline and the cumulative effects occurring in this area, it is not likely to jeopardize the continued existence of MCR steelhead.

Additionally, NMFS concludes that the subject action would not cause adverse modification or destruction of critical habitat for MCR steelhead. NMFS believes that the proposed action will cause some minor short-term increases in stream turbidity and sedimentation rates in East Birch Creek. It is also possible that some direct mortality of juvenile steelhead may result from the instream work. The fish salvage operation is likely to result in stress to listed steelhead and some direct mortality. However, because of precautions planned for this salvage operation, mortality is expected to be minimal. These short-term negative effects will be offset in the long term through habitat enhancement activities.

NMFS conclusions are based on the following considerations: 1) All instream work will occur during the ODFW instream work window for this area (1 July- 31 October), and instream work will be limited to the amount described in the BA; 2) all disturbed soils will be replanted with native vegetation; 3) livestock exclusion fencing will be maintained throughout the duration of the lease/easement to prevent damage to adjacent habitat; 4) fish salvage operations, following NMFS protocol, will be conducted by experienced ODFW staff and will use the preventative measures described in the BA to minimize stress and mortality to listed steelhead; 5) a comprehensive monitoring program will be conducted with annual reporting; 6) a net increase in fish habitat will result from the project activities.

1.7 Conservation Recommendations

Section 7 (a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Conservation recommendations are discretionary measures suggested to minimize or avoid adverse effects of proposed actions on listed species, to minimize or avoid adverse modification of critical habitat, or to develop additional information. The NMFS has no additional conservation recommendations regarding the action addressed in this Opinion.

1.8 Reinitiation of Consultation

Reinitiation of consultation is required if: 1) The action is modified in a way that causes an effect on the listed species that was not previously considered in the BA and this Opinion; 2) new information or project monitoring reveals effects of the action that may affect the listed species in a way not previously considered; or 3) a new species is listed or critical habitat is designated that may be affected by the action (50 CFR 402.16).

2. INCIDENTAL TAKE STATEMENT

Section 4(d) and Section 9 of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. Harm is defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering (64 FR 60727; November

8, 1999). Harass is defined as actions that create the likelihood of injuring listed species to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. Incidental take is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of Section 7(b)(4) and Section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement. An incidental take statement specifies the impact of any incidental taking of threatened species. If necessary, it also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

2.1 Extent of Take

The NMFS anticipates that the subject actions covered by this Opinion have more than a negligible likelihood of resulting in incidental take of juvenile MCR steelhead. Some minimal level of incidental take is expected to result from direct mortality or injury to juvenile MCR steelhead during instream work. The temporary increase in stream turbidity associated with this work could result in temporarily reduced feeding efficiency for juvenile MCR steelhead, both within and downstream of the project area. Effects from turbidity are expected to be of short duration, because turbidity levels will quickly return to preconstruction levels once instream work is completed. Incidental take in the form of capture and possible direct mortality is expected during the fish salvage operation. Proposed precautionary measures (Appendix A), planned by the ODFW for the fish salvage operation should keep direct mortality to a minimum. Because of the inherent biological characteristics of aquatic species such as MCR steelhead, the likelihood of discovering take attributable to this action is very limited. Effects of actions such as that addressed in this Opinion are largely unquantifiable in the short term, and may not be measurable as long-term effects on the species' habitat or population levels. Therefore, although NMFS expects some incidental take to occur due to the action covered by this Opinion, the best scientific and commercial data available are not sufficient to enable NMFS to estimate a specific amount of incidental take of listed fish at any life stage associated with the proposed construction activities. NMFS estimates that a small number of juvenile steelhead will be suffer lethal take due to the salvage operation. If more than 20 juvenile steelhead are killed during the salvage operation, the operation will halt and consultation must be reinitiated.

2.2 Effect of Take

In this Opinion, the NMFS has determined that the level of anticipated take is not likely to result in jeopardy to MCR steelhead or to destroy or adversely modify designated critical habitat when the reasonable and prudent measures are implemented.

2.3 Reasonable and Prudent Measures

The NMFS believes that the following reasonable and prudent measures are necessary and appropriate to minimize the likelihood of take of MCR steelhead resulting from the action covered in this Opinion. The COE shall:

1. Minimize the likelihood of incidental take resulting from in-water work required to complete the project addressed in this Opinion.
2. Minimize the amount and extent of incidental take from construction activities in or near watercourses by ensuring that an effective spill prevention, containment, and control plan is developed, implemented, and maintained to avoid or minimize point-source pollution both into and within watercourses over the short term and the long term.
3. Minimize the likelihood of take and impacts to critical habitat resulting from riparian area disturbances including removal of vegetation and disturbance of soils and sediments.
4. Minimize the likelihood incidental take that may occur during the fish salvage operations.
5. Minimize the likelihood that any degradation of riparian area by livestock will occur in the project area.
6. Complete a comprehensive monitoring and reporting program to ensure implementation of requirements found in this Opinion.

2.4 Terms and Conditions

To be exempt from the prohibitions of section 9 of the ESA, the COE must ensure compliance with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are nondiscretionary.

1. To implement reasonable and prudent measure #1, above, the COE/ODFW shall ensure that:
 - a. All instream work will be conducted during the ODFW instream work window for East Birch Creek, 1 July - 31 October.
 - b. Instream work will be limited to the actions described in the BA requiring instream work, no instream work associated with the bridge replacements will occur.
2. To implement reasonable and prudent measure #2, above, the COE/ODFW shall ensure that:

- a. The contractor will develop and implement a site-specific spill prevention, containment, and control plan (SPCCP), and is responsible for containment and removal of any toxicants released. The contractor will be monitored by the COE/ODFW to ensure compliance with the SPCCP.
 - b. Any spill will be reported to the NMFS.
 - i. In the event of a hazardous materials or petrochemical spill, immediate action shall be taken to recovery toxic materials from further impacting aquatic or riparian resources.
 - ii. In the event of a hazardous materials or petrochemical spill, a detailed description of the quantity, type, source, reason for the spill, and actions taken to recover materials will be documented.
 - c. All refueling of equipment will take place 300 feet from any waterbody and auxiliary fuel tanks will not be stored on bridges, roads or within the two-year floodplain.
 - d. A fifteen gallon capacity oil boom will be kept on site during all instream work.
 - e. All machinery will be inspected for leaks prior to on-site use.
 - f. Excavators will have properly guarded belly pan for pioneering type of work in rough terrain.
 - g. Bridges, access roads, and work pads within 300 feet of the two-year floodplain will have containment measures in place that minimize any potential of petrochemical or hazardous materials from entering the two-year floodplain or stream channel.
 - h. Measures will be taken to prevent construction debris from the bridge work from falling into the stream. Construction materials that fall into the stream during construction operations shall be promptly removed, where feasible, in a manner that has a minimum impact on the streambed and water quality.
3. To implement reasonable and prudent measure #3, above, the COE/ODFW shall ensure that:
- a. Construction activities will be conducted in a way which minimizes disturbance of riparian vegetation. In all areas that require removal of riparian vegetation, reseedling or replanting of native vegetation will occur.

- b. Any riparian vegetation that is removed will be used to the extent practicable in revegetation efforts.
 - c. Coir erosion control fabric will be used in conjunction with seeding to reduce sedimentation releases.
 - d. The planted and seeded areas will be watered during the first summer to optimize plant survival.
 - e. If seeding or planting in any of the riparian areas fail, additional revegetation efforts will be made to ensure the establishment of a healthy riparian plant community and reduce sediment loads to the stream.
 - f. Manual weed control and plant irrigation will occur during the summer after the major restoration efforts have been completed (2002). The Landowner's existing water rights will be used to irrigate the revegetated riparian areas during the first two years.
4. To implement reasonable and prudent measure #4, above, the COE/ODFW shall ensure that:
- a. The fish salvage operation is conducted by qualified ODFW personnel familiar with NMFS electrofishing guidelines (Appendix A). All precautionary measures outlined in the BA will be implemented.
 - b. During electroshocking, backpack electroshockers that meet NMFS guidelines for use on ESA listed fish will be used and the number of passes through the stretch will be kept to a minimum.
 - c. No electrofishing shall be conducted when water temperatures exceed 18 C. During periods of high water temperature, sampling shall occur early in the morning or in the evening before dark.
 - d. Surveyors shall observe the condition of sampled fish. If fish appear stressed or injured (dark bands, gulping air, excessive mucus, irregular swimming, or bucket predation), immediately halt sampling and decrease the frequency and voltage.
 - e. There shall be no fin clipping or use of anaesthetics on ESA listed salmonids.
 - f. Fish will not be returned to channel sections with high turbidity resulting from construction activities.
5. To implement reasonable and prudent measure #5, above, the COE/ODFW shall ensure that:

- a. Effective livestock exclusion fencing is maintained throughout the duration of the riparian lease/easement to prevent the degradation of riparian plant communities and streambanks.
6. To implement reasonable and prudent measures #6, above, the COE/ODFW shall ensure that:
- a. Within 1 year of completing the project, the COE will submit a monitoring report to NMFS describing the COE's success in meeting these terms and conditions. This report will consist of the following information:
 - i. Project name;
 - ii. Starting and ending dates of work completed for this project, and;
 - iii. The name and address of the construction supervisor.
 - iv. A Narrative assessment of the project's effects on natural stream function.
 - v. Photographic documentation of environmental conditions at the project site before, during and after project completion.
 - vi. A summary of summer stream temperatures recorded by thermographs.
 - vii. A summary of a monitoring and maintenance activities carried out by the ODFW and contractors.
 - viii. A summary of the stream habitat surveys proposed in the BA.
 - ix. A summary of electroshocking surveys carried out by the ODFW.
 - b. If a dead, injured, or sick endangered or threatened species specimen is located, initial notification must be made to the National Marine Fishery Service Law Enforcement Office, located at Vancouver Field Office, 600 Maritime, Suite 130, Vancouver, Washington 98661; telephone: 360/418-4246. Care should be taken in handling sick or injured specimens to ensure effective treatment and care or the handling of dead specimens to preserve biological material in the best possible state for later analysis of cause of death. In conjunction with the care of sick or injured endangered and threatened species or preservation of biological materials from a dead animal, the finder has the responsibility to carry out instructions provided by Law Enforcement to ensure that evidence intrinsic to the specimen is not unnecessarily disturbed.

- c. Monitoring reports will be submitted to:

National Marine Fisheries Service
Oregon Habitat Branch
Attn: OSB-2001-0026
525 NE Oregon Street, Suite 500
Portland, Oregon 97232-2778

7. To ensure that these terms and conditions are met, ODFW or COE personnel will be on-site for all construction activities.

3. MAGNUSON-STEVENSON ACT

3.1 Background

The objective of the Essential Fish Habitat (EFH) consultation is to determine whether the proposed action may adversely affect designated EFH for relevant species, and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH resulting from the proposed action.

3.2 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), requires the inclusion of EFH descriptions in Federal fishery management plans. In addition, the MSA requires Federal agencies to consult with NMFS on activities that may adversely affect EFH.

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting the definition of essential fish habitat: Waters include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; substrate includes sediment, hard bottom, structures underlying the waters, and associated biological communities; necessary means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (50 CFR 600.110).

Section 305(b) of the MSA [6 USC 1855(b)] requires that:

- Federal agencies must consult with NMFS on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH;
- NMFS shall provide conservation recommendations for any Federal or State Activity that may adversely affect EFH;

- Federal agencies shall within 30 days after receiving conservation recommendations from NMFS provide a detailed response in writing to NMFS regarding the conservation recommendations. The response shall include a description of measures proposed by the agency for avoiding, mitigating or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the conservation recommendations of NMFS, the Federal agency shall explain its reason for not following the recommendations.

The MSA requires consultation for all actions that may adversely affect EFH, and does not distinguish between actions within EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside EFH, such as upstream and upslope activities, that may have an adverse effect on EFH. Therefore, EFH consultation with NMFS is required by Federal agencies undertaking, permitting or funding activities that may adversely affect EFH, regardless of its location.

3.3 Identification of EFH

The Pacific Fisheries Management Council (PFMC) has designated EFH for three species of Pacific salmon: chinook (*Oncorhynchus tshawytscha*); coho (*O. kisutch*); and Puget Sound pink salmon (*O. gorbuscha*) (PFMC 1999). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC), and longstanding, naturally-impassable barriers (i.e., natural waterfalls in existence for several hundred years). Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14 to the Pacific Coast Salmon Plan (PFMC 1999). Assessment of potential adverse effects to these species' EFH from the proposed action is based on this information. Currently, the only chinook salmon present in East Birch Creek are of hatchery origin.

3.4 Proposed Action

The proposed action is detailed above in Section 1.2 of the ESA portion of this Opinion. The action area includes the East Birch Creek Fish Habitat Restoration project located on the Brogoitti and Houser Estates and adjacent stream and riparian areas. This area has been designated as EFH for various life stages of chinook salmon.

3.5 Effects of Proposed Action

As described in detail in the ESA portion of this consultation, the proposed activities may result in detrimental, short-term, adverse effects to a variety of habitat parameters.

3.6 Conclusion

NMFS believes that the proposed action may adversely affect the EFH for chinook salmon.

3.7 EFH Conservation Recommendations

Pursuant to Section 305(b)(4)(A) of the Magnuson-Stevens Act, NMFS is required to provide EFH conservation recommendations for any Federal or state agency action that would adversely affect EFH. In addition to conservation measures proposed for the project by the COE and ODFW, all of the Reasonable and Prudent Measures and the Terms and Conditions contained in Section 2.4 of the ESA portion of this Opinion are applicable to salmon EFH. Therefore, NMFS incorporates each of those measures here as EFH conservation recommendations.

3.8 Statutory Response Requirement

Please note that the Magnuson-Stevens Act (section 305(b)) and 50 CFR 600.920(j) requires the COE to provide a written response to NMFS' EFH conservation recommendations within 30 days of its receipt of this letter. The response must include a description of measures proposed to avoid, mitigate, or offset the adverse impacts of the activity on EFH. If the response is inconsistent with NMFS' conservation recommendations, the reasons for not implementing the COE shall explain its reasons for not following the recommendations.

3.9 Consultation Renewal

The COE must reinitiate EFH consultation with NMFS if either action is substantially revised or new information becomes available that affects the basis for NMFS' EFH conservation recommendations (50 CFR 600.920).

4. LITERATURE CITED

Section 7(a)(2) of the ESA requires biological opinions to be based on "the best scientific and commercial data available." This section identifies the data used in developing this Opinion.

Busby, P., S. Grabowski, R. Iwamoto, C. Mahnken, G. Matthews, M. Schiewe, T. Wainwright, R. Waples, J. Williams, C. Wingert, and R. Reisenbichler. 1995. Review of the status of steelhead (*Oncorhynchus mykiss*) from Washington, Idaho, Oregon, and California under the U.S. Endangered Species Act.

Busby, P., T. Wainwright, G.J. Bryant, L.J. Lierheimer, R.S. Waples, and I.V. Lagomarsino. 1996. Status review of west coast steelhead from Washington, Idaho, Oregon, and California.

Chilcote, Mark. 1998. Conservation Status of Steelhead in Oregon. Oregon Department of Fish and Wildlife Information Report No. 98-3.

- NMFS (National Marine Fisheries Service) 2000. Bull Trout Sampling Program Throughout Washington State. NMFS, Northwest Region, Seattle, Washington. Biological Opinion. June. (Available @ www.nwr.noaa.gov under Habitat Conservation Division, Biological Opinions).
- NMFS (National Marine Fisheries Service) 1996. Making Endangered Species Act determinations of effect for individual and grouped actions at the watershed scale. Habitat Conservation Program, Portland, Oregon. September 4, 1996.
- PFMC (Pacific Fishery Management Council). 1999. Amendment 14 to the Pacific Coast Salmon Plan. Appendix A: Description and Identification of Essential Fish Habitat, Adverse Impacts and Recommended Conservation Measures for Salmon. Portland, Oregon.
- Wedemeyer, G.A., B.A. Barton, and D.J. McLeay. 1990. Stress and acclimation. Pages 451-490 *in* C.B. Schreck and P.B. Moyle, editors. Methods for fish biology. American Fisheries Society, Bethesda, Maryland.

ELECTROFISHING GUIDELINES

Suggested protocol for the use of backpack electrofishing equipment in waters containing fish listed under the Endangered Species Act (ESA). These recommendations should be seen as guidelines for developing consistent and safe electrofishing technique. It is hoped that these guidelines will ultimately help improve electrofishing technique in ways which will reduce fish injury and increase electrofishing efficiency.

Purpose and Scope

The purpose of this document is to recommend guidelines for using backpack electrofishing equipment to sample ESA-listed fish. Because electrofishing can kill or severely injure fish, every effort should be made to avoid electrofishing and use snorkeling or other fishery information collection techniques. Where electrofishing is the only suitable sampling method, these guidelines are suggested to help reduce the number of fish killed or severely injured. These guidelines are concerned only with studies that involve electrofishing juvenile or adult salmonids that are *not* in spawning condition. Electrofishing in the vicinity of adults in spawning condition or operating equipment in the vicinity of redds containing developing eggs is not discussed as there is no justifiable basis for permitting these activities near listed species. Also, these guidelines do not deal with factors such as temperature or fish handling technique both of which can significantly affect fish health during an electrofishing session. None the less, all ESA-listed fish must be sampled with extreme care. The field crew must carefully design the sampling sessions to minimize fish stress by working within favorable temperature regimes, using anesthetics when necessary, and minimizing the time the fish are held before release. As with all fieldwork involving live ESA-listed fish, the best science should be used along with an experienced crew and good equipment in order to minimize handling stress.

Equipment

Equipment should be in good working condition. Operators should go through the manufacturer's preseason checks, adhere to all provisions, and record major maintenance work in a log.

Training

A crew leader having at least 100 hours of electrofishing experience in the field using similar equipment should train the crew. The crew leader's experience must be documented and available for confirmation; such documentation may be in the form of a logbook. The training should occur before an inexperienced crew begins any electrofishing; it should also be conducted in waters that do not contain ESA-listed fish.

The training program must include the following elements:

1. Definitions of basic terminology: e.g. galvanotaxis, narcosis, and tetany.

2. An explanation of how electrofishing attracts fish.
3. An explanation of how gear can injure fish and how to recognize signs of injury.
4. A review of these guidelines and the manufacturer's recommendations.
5. A demonstration of the proper use of electrofishing equipment, the role each crew member performs, and basic gear maintenance.
6. A field session where new individuals actually perform each role on the electrofishing crew.

Specific Electrofishing Guidelines

1. In order to avoid contact with spawning adults or active redds, carefully survey the area to be sampled before beginning electrofishing.

2. Measure conductivity and set voltage as follows:

<u>Conductivity (umhos/cm)</u>	<u>Voltage</u>
Less than 100	900 to 1100
100 to 300	500 to 800
Greater than 300	150 to 400

3. Only direct current (DC) should be used.
4. Each session should begin with pulse width and rate set to the minimum needed to capture fish. These settings should be gradually increased only to the point where fish are immobilized and captured. Start with pulse width of 500 us and do not exceed 5 milliseconds. Pulse rate should start at 30Hz and work carefully upwards. *In general*, exceeding 40 Hz will injure more fish.
5. The zone of potential fish injury is 0.5m from the anode. Care should be taken in shallow waters, undercut banks, or where fish can be concentrated because in such areas the fish are more likely to come into close contact with the anode.
6. The stream segment should be worked systematically, moving the anode continuously in a herringbone pattern through the water. Do not electrofish one area for an extended period.
7. Crew should carefully observe the condition of the sampled fish. Dark bands on the body and longer recovery times are signs of injury or handling stress. When such signs are noted, the settings for the electrofishing unit may need adjusting. Sampling should be terminated if injuries occur or abnormally long recovery times persist.

8. When the sampling design involves taking scales and measurements, a healthy environment for the stressed fish must be provided and the holding time must be minimized. For these operations, additional crew members who are experienced in holding and processing stressed fish may be necessary.
9. Whenever possible, a block net should be placed below the area being sampled to capture stunned fish that may drift downstream.
10. The electrofishing settings should be recorded in a logbook along with conductivity, temperature, and other variables affecting efficiency. These notes, together with observations on fish condition, will improve technique and form the basis for training new operators.